

REMARKS

Claims 1, 2, 5-8, 11, 12, 14-16 and 21-26 are pending in this application. Claims 1, 2, 5-7 and 23 are withdrawn from consideration. By this Amendment, claims 8, 14, 15 and 24-26 are amended to overcome a rejection under 35 U.S.C. §103(a), as discussed below.

No new matter is added by this Amendment. Support for the language added to claims 8, 14, 15 and 24-26 can be found throughout the original specification at, for example, page 18, lines 8-11.

I. Rejections Under 35 U.S.C. §103(a)

A. Watanabe in view of Maeta

Claims 8, 14-16, 21, 22 and 24-26 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,077,382 ("Watanabe") in view of U.S. Patent No. 5,677,246 ("Maeta"). This rejection is respectfully traversed.

The Patent Office alleges that Watanabe teaches substantially all of the features recited in independent claims 8, 14 and 15. However, the Patent Office admits that Watanabe does not teach or suggest that the adhesive covers all area of a lateral surface of the semiconductor chip as recited in claims 8, 14 and 15. Thus, the Patent Office introduced Maeta as allegedly teaching this feature.

Maeta teaches a method of manufacturing semiconductor devices that have a resin layer filled between the semiconductor chip and the substrate, and also formed to cover the outer side faces of the semiconductor chip. See column 17, lines 11-14 and Figures 11 and 13A of Maeta.

Applicant submits that Watanabe and Maeta, either in combination or alone, do not teach or suggest that a thickness of any part of said second portion of said adhesive is thicker than an interval between the surface of the semiconductor ship on which said electrodes are formed and said interconnect pattern on said substrate as recited in claims 8, 14 and 15.

It is clear from the figures of Watanabe that Watanabe does not teach or suggest that a second portion of the adhesive is thicker than an interval between the surface of the semiconductor chip on which the electrodes are formed and said interconnect pattern on said substrate as required in claims 8, 14 and 15. See Figures 1-1 through 1-4 of Watanabe. Similarly, Maeta does not teach or suggest this feature. See Figures 3A-B, 10A, 11, 13A, 16 and 17 of Maeta.

Applicant submits Watanabe and/or Maeta teach that the second portion of the adhesive has a part which is thinner than the interval between the surface of the semiconductor chip on which electrodes are formed and the interconnect pattern on the substrate. Having the second portion thicker than the interval between the semiconductor chip and the interconnect pattern as recited in claim 8, 14 and 15 reduces the moisture soaking into the adhesive and accumulating under the semiconductor chip. See page 18, line 25 through page 19, line 1 of the specification. Neither Watanabe nor Maeta provide this benefit.

Furthermore, while Maeta teaches covering some portion of the outside faces of the semiconductor chip to improve the reliability of the semiconductor device, Maeta does not teach or suggest covering all of the outer side face as required in the present claims as alleged by the Patent Office. Maeta clearly teaches that it is sufficient to cover only a small portion of the outer side faces as seen in Figures 3A and 3B of Maeta. Even Figure 11, cited by the Patent Office, does not show that all of the outer side face is covered by the adhesive, a small gap still being evident between the adhesive and the top of the outer side faces.

For the foregoing reasons, Applicant submits that claims 8, 14-16, 21, 22 and 24-26 are patentable over Watanabe and/or Maeta. Reconsideration and withdrawal of the rejection are thus respectfully requested.

B. Watanabe in view of Maeta, further in view of Tsukagoshi

Claim 11 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Watanabe in view of Maeta, and further in view of U.S. Patent No. 5,804,882 ("Tsukagoshi"). This rejection is respectfully traversed.

Tsukagoshi does not remedy the deficiencies of Watanabe and Maeta. In particular, Tsukagoshi does not teach or suggest that a thickness of any part of said second portion of said adhesive is thicker than an interval between the surface of the semiconductor chip on which said electrodes are formed and said interconnect pattern on said substrate as required in claim 8.

Accordingly, Applicant submit that claim 11 is patentable over Watanabe, Maeta and/or Tsukagoshi. Reconsideration and withdrawal of the rejection are thus respectfully requested.

C. Watanabe in view of Maeta, further in view of Canning

Claim 12 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Watanabe in view of Maeta, and further in view of U.S. Patent No. 5,783,465 ("Canning"). This rejection is respectfully traversed.

Canning does not remedy the deficiencies of Watanabe and Maeta. In particular, Canning does not teach or suggest that a thickness of any part of said second portion of said adhesive is thicker than an interval between the surface of the semiconductor chip on which said electrodes are formed and said interconnect pattern on said substrate as required in claim 8.

Accordingly, Applicant submit that claim 12 is patentable over Watanabe, Maeta and/or Canning. Reconsideration and withdrawal of the rejection are thus respectfully requested.

II. Rejoinder

Non-elected claims 1, 2, 5-7 and 23 are directed to a method of making the semiconductor device of claim 8. Thus, upon allowance of claim 8, the non-elected claims should be rejoined with the application and allowed along with claim 8. Accordingly, upon allowance of claim 8, rejoinder of presently non-elected claims 1, 2, 5-7 and 23 is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 2, 5-8, 11, 12, 14-16 and 21-26 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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